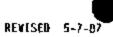
FMEA NO. N 8.34  CRITICALITY 2/2		SHUTTLE CCTV CRITICAL ITEMS LIST	DWG NO. 2291289-501 1SSUED 10-14-86 SHEET 1 UF 5
FAILURE MODE AND FAILURE EFFECT CAUSE ON END JTEM		RATIONALE FOR ACCEPTANCE	
CAUSE ON END JTEM  oss of LOC Code RTN No wrist video,  pen Morst Case:	ON END ITEM  No wrist video,  Worst Case:  Loss of mission critical	DESIGN FEATURES  The MB wrist /TYC cable is a 19-inch long assembly, 14-wire assembly originating at the MBS wrist with a 26-pin connector (Pil, PY6G16S26PN016) and terminating at a TYC with 37-pin connector (Pil, KJ6GE14N35SN16). The video and sync wires are shielded #24 Twin twisted-pair wires. The NB cable provides power and commands from the RYS to the wrist or albow camera stack.  The cable design is taken from the successfully flown Apollo program. The design is a cable-connector assembly in which the wire terminations are protected from excessive flexture at the Joint between the wire and the connector terminal. The load concentration is moved away from the conductor connection and distributed axially alor the length of the conductors encapsulated in a potted-taper profile. This technique also protects the assembly from dirt and entrapped moisture which could cause problems in space.  The cable and its components meet the applicable requirements of NASA, Military and RG specifications. These requirements include:  • General/Mechanical/Electrical Features  • Design and Construction  • Materials  • Terminal Solderability  • Environmental  • Qualification  • Marking and Serialization  • Traceability and Documentation	

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FMEA NG. W 8.34  CRITICALITY 2/2		SHUTTLE CCTV CRETICAL ITEMS LIST	UNTT CABTE ONG NO. 2293289-501 [SSUED TO-14-86 SHEET 2 OF 5
FAYLURE MODE AND FAILURE EFFECT CAUSE ON END FIEM		RATIONALE FOR ACCEPTANCE	
oss of LOC Code RTN nen	Code RTN  Ro wrist video.  Horst Case:  Loss of mission critical video.  ACCEPTANCE TEST  The cable acceptance test consists of an ohmmeter		to assure that each wire
		Connection is present and intact. Results are recorded on data sheets.  OPERATIONAL TEST  The following tests verify that CCTV components are operable and that the commands from the PHS (ATAI) panel switch, through the RCU, through the sync lines to the Camera/PTU to the Camera/PTU command decoder are proper. The tests also verify the camera's ability to produce video, the VSU's ability to route video and the monitor's ability to display video. A similar test verifies the MDH command path.  Pre-Launch on Orbiter Test/In-flight Test  1. Power CCTV System. 2. Select a monitor via the PHS panel, as destination and the camera under test as source. 3. Send "Camera Power On" command from PHS panel. 4. Select "External Sync" on monitor. 5. Observe video displayed on monitor. If video on monitor is synchronized (i.e., stable raster), then this indicates that the camera is receiving composite sync from the RCU and that the camera is producing synchronized video. 6. Send Pan, Tilt, Focus, Zoom, A.C., and Gamma commands and visually (either via the monitor or direct observation) verify proper operation. 7. Select Downlink as destination and camera under test as source. 8. Observe video routed to down link. 9. Send "Camera Power Off" command via PHS panel. 10. Repeat Steps 3 through 9 except issue commands via the MOH command path. This proves that the CCTV equipment is operational if video is satisfactory.	

FMEA NO. W 8.34  CRITICALITY2/2		SHUTTLE CCTV CRITICAL ITEMS LIST	DMT 1 CA618 DMG NO. 2293289-501 1SSUED 10-14-86 SMEET 1 0F 5
FAILURE MODE AND FAILURE EFFECT CAUSE ON END ITEM		RATIONALE FOR ACCEPTANCE	
s of LOC Code ATN	No wrist video.  Worst Case: Loss of mission critical video.	Procurement Control - Wire, connectors, solder, etc. ar and suppliers which meet the requirements set forth in Plan Mork Statement (MS-2593176).  Incoming Inspection & Storage - Incoming Quality Inspectant and parts. Results are recorded by lot and a control numbers for future reference and traceability. Material Controlled Stores and retained under specific fabrication is required. Non-conforming materials are (MRB) disposition. (PAI-307, PAI IQC-5].  Assembly & Test - Prior to the start of assembly, all by stock room personnel as the items are accumulated to verified again by the operator who assembles the kit by as-built-parts-list (ABPL).  Specific instructions are given in assembly drawing not These are 220000 - Process Standard crimping flight corruces Standard in-line splicing of standard intercoms sleeves, 2280876 - Process Standard marking of parts on 2280876. Potting material and test procedure (TP-AT-22 Inspections are performed at the completion of key open Preparation for Shipment - When fabrication and test is packaged according to 2280746, Process Standard for Parall related documentation including assembly drawings, is gathered and held in a documentation folder assigned assembly. This folder is retained for reference.	the CCTV contract and Quality ctions are made on all received retained in file by drawing and Accepted items are delivered to d conditions until cable held for Material Review Board  items are verified to be correct a form a kit. The items are y checking against the  tes and applicable documents. annector contacts, 2200001 - mecting wire using Raychem solder r assemblies with epoxy colors, 293269). Quality and DCAS rations. s complete, the cable assembly is ckaging and Handling Guidelines. Parts List, ABPL, fest Data, etc.





FMEA NO. W 8.34 CRITICALITY 2/2		SHUTTLE CCTV CRIFICAL (TEMS LIST	UNIT CAGTE  DIAG NO. 2293289-501  ESSUED TO-14-86  SHEET 4 OF 5	
FAICURE MODE AND FAICURE EFFECT ON END ITEM		RATIONALE FOR ACCEPTANCE		
Loss of LOC Code RPN No wrist video.  Open <u>Worst Case</u> :  Loss of mission critical video.		FAILURE HISTORY  There have been no reported failures during RCA	testing, pre-filght or flight.	

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FMEA NO. M 8.34 CRITICALITY 2/2		SHUTTLE CCTV CRITICAL ITEMS LIST	UNTI CABLE  DWG NO. 2293289-501  LSSUED 10-14-05  SHEET 5 OF 5
FATEURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE	
SS OF LOC Code RTN	No wrist video.  Worst Case: Loss of mission critical video.	OPERATIONAL EFFECTS  Loss of viden. Possible loss of major mission objective other required cameras.  CREN ACTIONS  If possible, continue RMS operations using alternate visit CREN TRAINING  Crew should be trained to use possible alternates to CCMMISSION CONSTRAINT  Where possible procedures should be designed so they can	sual cues. FV.